

Defending Against Biological and Chemical Attacks

*Brig. Gen. Jess A. Scarbrough, USA
Joint Program Executive Officer for Chemical and Biological Defense*



The Joint Program Executive Office for Chemical and Biological Defense, formed just seven years ago, is on the forefront of developing cutting-edge defenses and protection for military servicemembers against potential chemical and biological attacks. In the past year alone, the organization has fielded more than 1.3 million items of equipment to the military services, including protection masks, biological detectors, and chemical detectors. The organization is also involved in preparing our country to respond to potentially crippling pandemics, as demonstrated by its involvement in H1N1 research. Army Brig. Gen. Jess A. Scarbrough, the joint program executive officer for chemical and biological defense (JPEO-CBD), spoke with *Defense AT&L* about the latest initiatives in the program office. Mike Kotzian, the DAU Mid-Atlantic Region acquisition/program management department chair, oversaw the development of this interview.



Q You currently serve as the JPEO-CBD, the focal point for research, development, acquisition, fielding, and life cycle support of CBD equipment and medical countermeasures for DoD. Can you give us an overview of your role and responsibilities?

A We could spend a lot of time discussing my role and responsibilities in the Joint Program Office; however, I will summarize them at the strategic level to give your readers the information necessary to understand this great organization.

My role is leading this 1,100-person acquisition organization to set the culture, synchronize the strategic

environment, and to provide vision. We develop, field, and provide life cycle management for both medical and non-medical chemical and biological defense equipment and ground force protection systems to the four Services, to include Special Operations Command. We support the forces and ongoing operations; we field improved joint capabilities; we develop advanced technologies for the future; we coordinate and, wherever possible, we support the interagency and international demands for our systems.

My responsibilities:

- I am the milestone decision authority for the chemical and biological defense medical and non-medical equipment and ground force protection systems throughout the acquisition process. I ap-

prove each equipment development program for cost, schedule, and performance as it goes through each phase of the acquisition process, and ultimately, fielding that equipment according to the requirements generated by the Services.

- I am the joint materiel developer responsible for delivering the chemical and biological defense and ground force protection systems to all the Services.
- I communicate and coordinate the status of our programs to all our stakeholders as they progress through the acquisition phases. Our stakeholders include the Office of the Secretary of Defense for Nuclear, Chemical and Biological Programs; the J-8, Joint Requirements Office for Chemical and Biological Equipment; the Joint Science and Technology Office for Chemical and Biological Defense; the Test Executive for Chemical and Biological Defense; the Program Analysis and Integration Office; and the Army, Navy, Air Force, Marine Corps, and Special Operations Command.
- I am the life cycle manager for all chemical, biological, and force protective systems fielded. The Services are ultimately responsible for the sustainment of equipment, but it is through my office that we work joint strategies and support to lessen the operations and maintenance money spent on our systems.
- I coordinate and collaborate with other departments and agencies, including the Department of Homeland Security, the Office of the Secretary of Health and Human Services, the Health and Human Services' Center for Disease Control and Prevention, the U.S. Army Medical Research and Materiel Command and Medical Research Institute for Infectious Disease and Prevention, and the Food and Drug Administration. This coordination and collaboration leverages all of our funding to provide the taxpayer the best return possible on each dollar spent.
- I strive to keep myself and my senior leaders aware of the national strategic direction as it pertains to our programs and impact on those programs.
- I look for opportunities where our pieces of equipment can be better integrated and interoperable with the Services' major defense programs.

My vision is that our organization remains an agile, results-oriented, and transformational acquisition enterprise delivering net-centric, modular, tailorable, and multipurpose capabilities to the warfighters and our nation.

Q

After becoming the JPEO-CBD, what did you see as the priorities for this position? What changes do you anticipate the organization facing in the future, and how are you preparing for those changes?

A

Foremost, the JPEO-CBD is only seven years old. I inherited an organization with great processes and procedures

already in place. The Department of Defense is simultaneously transforming and recapitalizing U.S. Armed Forces while prosecuting operations in Iraq and Afghanistan and unconventional warfare against global terrorist threats. Our daily efforts are shaped by these events. We are committed to fielding the best chemical and biological defense equipment, medical countermeasures, and force protection systems to joint warfighters. As the government refocuses on acquisition reform and contracting practices, we remain ever vigilant to be the best possible stewards of taxpayer dollars. We have developed chemical and biological defense systems that can be used in both conventional (major combat operations) and irregular (homeland defense, security, and force protection) scenarios.

I have three priorities for the JPEO-CBD:

- Establish a "trail boss" approach to better integrate our systems and equipment and field a system-of-systems capability
- Ensure acquisition reform
- Establish a single contracting office for our entire enterprise.

The trail bosses' strategic initiatives are:

- Biosurveillance, to integrate and tie together our detectors, diagnostic equipment, medical countermeasures, and information tools into the existing national biosurveillance structure
- Non-traditional agent defense, to integrate upgraded technologies that will detect, protect individuals from, or counteract these agents
- Major defense acquisition program capability integration, whose primary focus is to assist those program managers with integrating chemical, biological, radiological, and nuclear capabilities into their platforms
- Information management/information technology, to create and integrate a single chemical, biological, radiological, and nuclear defense Web-enabled information system that fuses all of our sensors, warning, and reporting systems and decision-making tools.

Our program managers will continue to lead and manage individual programs; the empowered trail bosses will focus on the challenges of integrating our systems and equipment, both internally and with the Services' systems and equipment. I plan to elaborate more on acquisition reform as we continue, but for now, I will just say that acquisition reform is one of my priorities, and that we have embraced acquisition reform as one more way to continue to build the credibility of the acquisition process.

We have found one of the secondary effects of acquisition reform to be the need for additional contracting expertise and consistency. Right now, we meet our contracting needs through 23 different contracting offices across the Services, which does cause issues in our generating a consistent approach toward our contract solicitations. To meet our need

for contracting expertise and consistency, we are working with the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology and the U.S. Army Research, Development and Engineering Command, a major subordinate command of Army Materiel Command, to set up a contracting office to support the JPEO-CBD. This will simplify our contracting efforts and facilitate contract improvements across the enterprise.

Q *The JPEO-CBD is organized into eight joint project managers who lead, manage, and direct the acquisition and fielding of chemical and biological detection and reconnaissance systems, individual and collective protection systems, decontamination systems, information management systems, medical devices, drugs and vaccines, and installation and force protection systems. Can you discuss the organizational structure of the JPEO-CBD and the specific duties of the joint project managers?*

A We have eight joint project managers within the JPEO-CBD at this time, and we are in the process of chartering a ninth. Our Joint Project Management Offices are Contamination Avoidance, Guardian, Individual Protection, Information Systems, Medical Systems, Decontamination, Collective Protection, and Biological Defense. Our recommended ninth office is the joint project manager for Transformational Medical Technology. Joint project managers are responsible for the complete life cycle management of their closely re-

lated products, from technology development (Milestone A) through fielding (Milestone C) and sustainment. These tremendous acquisition professional men and women are where the rubber meets the road. They develop and procure all the new equipment and train key personnel on their operation.

Specifically, I expect our joint project managers to be strategic thinkers and enablers, and to assist them in this, we have designated some of them as trail bosses for strategic initiatives that we discussed earlier. When we develop equipment, I also expect them to pursue multipurpose capabilities to the maximum extent possible. For example, I'd like to see them develop and field capabilities that transcend operational levels, such as our Joint Biological Agent Identification and Diagnostic System. This system is used at the operational level to diagnose individual samples, but it has a theater-wide and global role when used to support efforts to conduct biological agent medical surveillance. Another example of multi-purpose equipment would be the joint service general protective mask, which not only provides enhanced performance and replaces multiple older masks across all of the Services, but also has a variant version that is sought after by consequence management personnel and others.

Q *Biological warfare, particularly in light of anthrax scares in the United States over the past few years, is a real concern to the*

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safety of the warfighters and our country. Can you discuss how JPEO-CBD is preparing to respond to biological warfare and what role the organization plays in the nation's biological defense?

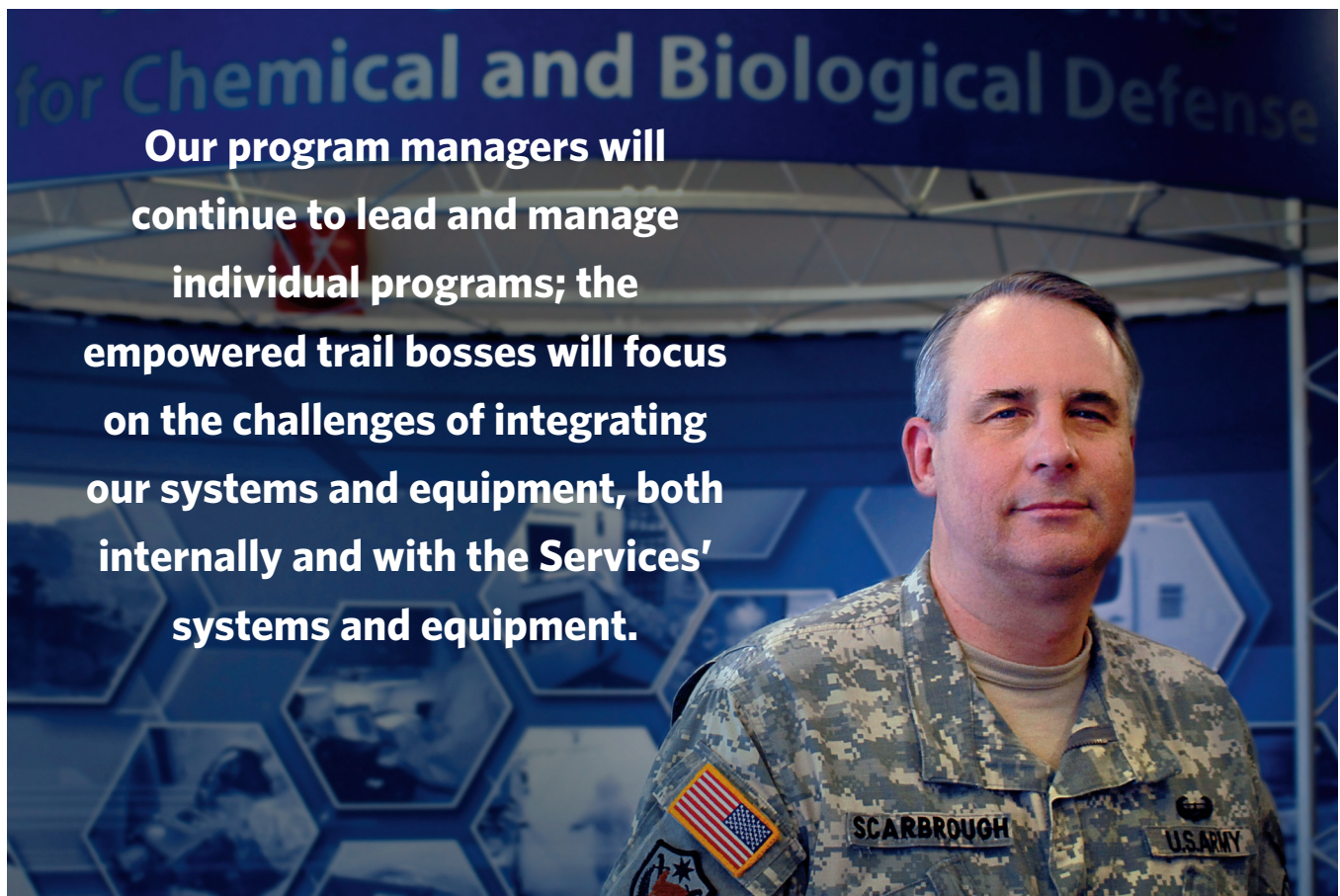
A At the strategic level, we tie into the prevention of the proliferation and countering weapons of mass destruction—one of the key six missions emphasized by Secretary of Defense Robert Gates in the 2010 Quadrennial Defense Review. Of the eight military mission areas for combating weapons of mass destruction, the JPEO-CBD role is primarily in chemical, biological, radiological, and nuclear passive defense, meaning we provide both medical and non-medical capabilities to defend personnel against the use of these weapons. Wherever we can, however, we develop multi-purpose equipment that transcends passive defense.

We have partnered with the Defense Threat Reduction Agency, the Defense Advanced Research Projects Agency, the Department of Homeland Defense, the Secretary of Health and Human Services, the Joint Science and Technology Office, the United Kingdom, and others to provide vaccines against classic biological warfare agents such as anthrax and smallpox, therapeutics against emerging biological threats such as the Marburg virus, and diagnostic and detector equipment to identify agents in the environment; and to conduct medical surveillance and screening.

In this last area, per the president's State of the Union address, we are rapidly expanding our diagnostic capabilities to include infectious diseases such as H1N1.

We provide integrated consequence management capability sets (detection, protection, decontamination, etc.), to National Guard civil support teams as well as state-of-the-art detectors and other equipment to homeland defense units such as the U.S. Army 20th Support Command (Chemical, Biological, Radiological, Nuclear and Explosive) and the Chemical, Biological, Radiological, Nuclear and Explosive Consequence Management Response Forces. In addition, we field integrated installation consequence management response capabilities to select installations both at home and abroad.

Just as important, within our community, we are doing the research necessary to develop the partnerships and platforms necessary to rapidly identify and develop treatments for emerging biological threat agents. We are also developing and integrating the decision-making tools, individual protective equipment, and decontamination capability necessary to strengthen our ability to respond to biological agents in each step of a response, from warning of attack, providing medical pre-treatments, respiratory and barrier protection, making post-attack characterization and decisions, and recovery through decontamination and providing post-exposure prophylaxis.



Q *In addition to biological warfare, the United States faces challenges with responding to a pandemic, such as the recent outbreak of H1N1. In fact, when H1N1 was first realized as a major threat, the Centers for Disease Control and Prevention in Atlanta, Ga., contacted the JPEO-CBD's Joint Project Management Office for Chemical Biological Medical Systems to request DoD's assistance in developing a way for DoD medical professionals to identify and diagnose the disease in humans. Can you further discuss JPEO-CBD's role in responding to the H1N1 outbreak and how it is able to respond to other outbreaks?*

A In 2009, the Secretary of Health and Human Services declared a public health emergency due to pandemic influenza. The next day, the Centers for Disease Control and Prevention asked us to add swine flu as a capability on the system we developed that provides deployable medical units with a way to identify and diagnose human disease.

We partnered with the Centers for Disease Control and the Armed Forces Health Surveillance Center Division of Global Emerging Infections Surveillance and Response Systems to prepare the submission for the Food and Drug Administration, and 83 days after submitting the request to the Food and Drug Administration, the Department of the Army Office of the Surgeon General received notice that the Food and Drug Administration granted our emergency use authorization request. This is a process that normally takes 18 to 24 months. As I stated earlier, we are continuing to expand our diagnostic capabilities to include other infectious diseases.

Our recommended ninth joint project manager for Transformational Medical Technology has made significant strides in bringing our rapid response capability beyond diagnostics toward being able to rapidly provide effective medical treatments. Recently, they have rapidly characterized and provided an effective treatment for H1N1 in an animal population. While there is a long way to go for us to be able to work this type of capability through the Food and Drug Administration process for use in humans, we are making significant progress in this area.

Q *While operations in Iraq are still ongoing, there has been a shift in focus to operations in Afghanistan. Can you discuss the role JPEO-CBD is playing in Iraq and Afghanistan and how the organization is preparing for the shift in operational focus from Iraq to Afghanistan? How does it deal with the challenges of providing fast and needed support to military groups that may be geographically isolated?*

A Our initial emphasis in Iraq was the rapid fielding of capabilities to exploit sensitive sites that may contain chemical warfare agents or toxic industrial chemicals, and to work

with other project managers to upgrade the survivability characteristics of the vehicles into which our equipment was integrated. Over time, our emphasis became working with other program executive offices under the Office of the Assistant to the Secretary of the Army for Acquisition, Logistics and Technology to field urgently needed integrated force protection solutions. This emphasis has carried over to Afghanistan.

To meet the logistic challenges inherent in fielding these capabilities, we again emphasize transparency, collaboration, and communication with our partners in the Office of the Assistant to the Secretary of the Army for Acquisition, Logistics and Technology; U.S. Tank and Automotive Command; Defense Logistics Agency; and our industry partners providing in-country contractor logistic support. We also keep track of our industrial base and our ability to respond to potential increased requirements due to an increase in operational tempo or national emergency.

Q *A new Non-Medical Chemical Biological Defense Facility is currently being built at Aberdeen Proving Ground, Md., and this facility is expected to be a place where all the military services can work together on chemical and biological defense. Can you discuss how JPEO-CBD works across the military services to deliver the best chemical and biological defense products?*

A In regard to your mention of the new facility, we are certainly looking forward to being co-located with our partners in the Joint Science and Technology Office; the U.S. Air Force 649 Aeronautical Engineering Systems Squadron; the U.S. Army Research, Development and Engineering Command; and the U.S. Army Edgewood Chemical and Biological Command at Aberdeen Proving Grounds.

There are two levels that we work across the military services and U.S. Special Operations Command to deliver chemical and biological defense products. On one level, it is the entire chemical and biological defense program team that works effectively across the military services to deliver capability. In that team, the U.S. Army is the executive agent for the program, and I work directly for Dr. Malcolm Ross O'Neil, the Army acquisition executive, to execute my acquisition responsibilities as a milestone decision authority. Andrew Weber, the assistant to the secretary of defense for nuclear, chemical and biological programs, and the Office of the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense and the Chemical Demilitarization Program provide the program strategic guidance and oversight. The Joint Requirements Office, the Joint Science and Technology Office, the chemical and biological defense test and evaluation executive, and the Program Analysis and Integration Office all play a critical role in the program's ability to meet the chemical and biological defense needs of the armed forces and our nation.

On the JPEO-CBD-specific level, my predecessor worked hard to make us a joint organization, and I am enjoying the results of his work. We have joint project managers and military and civilian employees representing all four Services and U.S. Special Operations Command. We have built joint processes, such as our materiel release process and Joint Quarterly Equipment Readiness Reviews; joint working groups, such as our Joint Logistic Advisory Council; and a joint but centralized and authoritative hotline and logistic information system, called the Joint Acquisition Chemical, Biological, Radiological and Nuclear Knowledge System. We maintain credibility with our customers by ensuring they have access to and knowledge of everything we are doing and also by providing constant interface and communication at every level. All of that together helps us to work across all of the Services and U.S. Special Operations Command to deliver best-of-breed chemical and biological defense products.

Q *The Joint Project Manager for Information Systems is responsible for providing the warfighter with integrated early warning capabilities of chemical and biological hazards, a hazard prediction model, and state-of-the-art consequence management and course of action analysis tools. Can you further discuss those warning tools and provide examples of them in action?*

A When individual chemical or biological sensors are triggered, the commander has two questions. The first question is, "What is the hazard area?" The Joint Warning and Reporting Network, which answers that question, provides the joint force commander with a comprehensive warning and reporting capability to collect, analyze, identify, locate, report, disseminate, and minimize the effects of hostile chemical, biological, radiological, and nuclear attacks or accidents and incidents. We have integrated this program with the Global Command and Control System-Joint, -Maritime, and -Army.

The second question is, "Where and how is the hazard moving?" The Joint Effects Model, which answers that question, provides the single, validated capability to predict the transport and dispersal of high-fidelity downwind hazard areas and effects associated with the release of chemical, biological, radiological, nuclear, and toxic industrial hazards into the environment. The model incorporates the impacts of weather, terrain, and material interactions into the downwind prediction while providing enhanced situational awareness of the battlespace and real-time hazard information to influence and minimize effects on current operations. This model is integrated with the Joint Warning and Reporting Network system and the Service command and control systems, and is also available as a standalone variant.

I am very excited about our movement toward an open chemical, biological, radiological, and nuclear defense Web-enabled service and service-oriented architecture for the military services, homeland defense agencies and elements,

and our coalition partners. This capability will fuse information from all available sensors to dramatically increase our chemical, biological, radiological, and toxic industrial chemical detection capabilities; and it allows the user to access a wider array of information and tools he or she may require to mitigate the effects of these agents on their operations or to the population.

Q *The JPEO-CBD is pursuing technology advances in sorbents, coatings, and physical removal, which are expected to reduce logistics burden, manpower requirements, and lost operational capability associated with decontamination operations. Can you further discuss how the Chemical and Biological Defense Program's advances will improve capabilities without the need for additional manpower requirements?*

A As you stated, decontamination operations, as we know them today, are resource- and labor-intensive operations. In our decontamination family of systems acquisition strategy, we are looking at capabilities to reduce the need for decontamination, like self-decontaminating or strippable coatings for vehicles; we are developing technologies to focus decontamination on the specific areas of a vehicle that are contaminated, like chemical agent disclosure sprays; and we are developing a family of decontaminating agents that will be more effective and quicker acting across the entire chemical and biological threat spectrum.

In other programs, we are developing the capability to rapidly decontaminate sensitive equipment and platform interiors, such as night vision devices and aircraft cockpits. We are also in discussions with the joint combat developer, the Joint Science and Technology Office, and the Joint Requirements Office about pursuing other avenues—such as robotics—for further reducing the manpower and logistic footprint associated with decontamination operations.

Q *You previously served as the assistant deputy for acquisition and systems management, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology. Can you discuss how that job prepared you for your current duties?*

A My previous duties as the chief of staff to the Army acquisition executive and the assistant deputy for acquisition and systems management in the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology prepared me for my existing duties by helping me to understand the importance of best business practices, transparency, partnership, collaboration, and succinct communications as I work across the Chemical and Biological Defense Program enterprise; and it helped me learn to synchronize timely decisions to support my joint project managers to develop and field integrated chemical and biological defense

capabilities both inside and outside the Department of Defense.

My predecessor had established multiple joint processes, to include joint life cycle management reviews, joint quarterly equipment readiness reviews, and the Joint Logistics Advisory Council. Because of these mature management processes, I am able to focus on key areas, such as acquisition reform and providing our joint warfighters and first responders with enterprise-type solutions. Acquisition reform helps us to maintain the highest acquisition standards in providing more rigor to our processes and also assists us in getting the right capability, at the right cost, at the right time, to the right people who need it. My past experience as the program manager for the Tactical Exploitation of National Capabilities Program helps me to understand the importance of enterprise solutions that will ensure we continue meeting the users' expectations that our systems will be integrated across the chemical and biological defense portfolio.

Q *As the acquisition process is refined due to DoD 5000.02 and the recently passed Weapon Systems Acquisition Reform Act, how is JPEO-CBD responding to those changes in the acquisitions process?*

A We've embraced these changes as a way to continue to build the credibility of the acquisition process and the acquisition community with all of our stakeholders. Upfront involvement by the entire community in the materiel development decision ensures there is a common understanding throughout the community of both the requirement and the maturity

and ability of available technology to meet that requirement. This prevents discovery and surprises in later stages of a program. We have conducted materiel development decisions on 10 projects to date, and we have six more scheduled in the next 10 months.

There are secondary effects to this early involvement of the community. Much more time and funding (and the right type of funding) is required in the technology development phase. As I mentioned earlier, partially in response to our increased contracting needs, we are also working with others to establish our own contracting office. But, again, when combined with the requirement for competing prototypes, the materiel development decision process is evolving to be an excellent tool to limit risk in our capability development.

Acquisition reform is not the only way we continue to build the credibility of the acquisition process and the acquisition community with all of our stakeholders. Again, my predecessor put in place multiple levels of program reviews through which we maintain transparency and communication with all of our stakeholders on every program we execute.

For example, each program within the JPEO-CBD portfolio undergoes extensive review on a quarterly basis in a joint life cycle management review, which is open to all of our stakeholders. Program assessments cover systems engineering, logistics supportability and sustainability, test and evaluation, acquisition documentation, cost, funds execution and contractor performance, schedule, and overall performance. Another example is our joint quarterly readiness reviews for those programs entering or in the life cycle sustainment phase. All of our stakeholders participate in these reviews, and through them, we have been able to quickly identify and resolve stakeholder logistic and sustainment concerns across our portfolio of fielded capabilities.

Q *How has the Chemical, Biological, Radiological, and Nuclear Survivability Policy affected the way the JPEO-CBD does business or plans to do business in the future.*

A From an organizational or policy perspective, it doesn't change our plans for how we do business at all. We have already designated one of our joint project managers as a trail boss for major defense acquisition programs, and he works with those programs upfront to help them integrate individual protection, decontamination, collective protection, sensors, and information systems seamlessly into their platforms within their cost and schedule constraints.



From a scope and funding perspective, it changes our plans significantly. Working with program managers across all four Services to ensure the chemical, biological, radiological, and nuclear survivability of every mission-critical weapons platform within the Department of Defense is a huge undertaking. But our approach to this task is our usual approach: For the partnerships required for success, we must be open and transparent about what we can and cannot do, and above all, we must ensure we maintain active lines of communications with all of our stakeholders and partners.

Q *How is JPEO-CBD attracting the best and brightest scientists to its workforce? What hiring and recruiting plans are in effect for your organization?*

A We have created several technical and scientific billets within the JPEO-CBD and work hard to find talented people to fulfill these billets. We do seek out expertise from across the Service laboratories, academia, industry, the entire federal government, and our international allies. We can bring far more expertise to meet our needs through collaboration and partnerships than we can by trying to recruit all of our own experts. Keeping our infrastructure and project funding at levels adequate to retain this expertise across the entire community while combating weapons of mass destruction is an issue we work through every budget cycle.

The JPEO-CBD is moving to Aberdeen Proving Grounds in 2011, and we are working with the installation and our



partners at the U.S. Army Research, Development and Engineering Command and Edgewood Chemical and Biological Command to put in place a new Joint Center of Excellence there. We are all very excited about the potential that this Joint Center of Excellence for chemical and biological defense represents for recruiting and retaining top talent.

Given this move and the Department of Defense intent to grow the acquisition workforce, we are offering as many financial (i.e., relocation bonus) and work (i.e., alternative work schedule) incentives as we can to retain our workforce while also recruiting talented entry-level personnel at Aberdeen Proving Ground with plans to accelerate their training to meet our needs in various functional areas, such as acquisition logisticians and financial analysts.

Q
Are there any further items you would like to discuss with readers?

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Every day, we in the JPEO-CBD focus on supporting ongoing operations, improving the chemical and biological defense capabilities of our nation and building for the future. In the past year, we have fielded more than 1.3 million items of equipment to the Services and U.S. Special Operations Command. This includes more than 149,900 joint Services general purpose masks, more than 7,000 chemical detectors, more than 400 biological detectors, and integrated protection solutions for 12 installations both inside and outside of the United States. In addition, we have and continue to meet urgent need requirements for force protection for ongoing operations.

We are committed to working with all of our partners to mitigate the rapidly evolving chemical, biological, radiological, and nuclear threats facing our armed forces and the nation. With our partners, we are pulsing academia, industry, and the world for existing technologies that we rapidly develop into cutting-edge capabilities required to defeat and to assist in deterring those threats. Whenever possible we are ensuring these capabilities provide a benefit both to forces undertaking conventional operations, and to those organizations involved in defending our homeland.

In closing, I want to emphasize the collaboration we enjoy through partnerships we have developed and continue to nurture. We foster an atmosphere of transparency and embrace our responsibilities to remain relevant and responsive to the taxpayers, to our stakeholders, and most important, to the warfighter.

Q
Thank you very much for your time.



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